From Coop to Market: Transforming Poultry Enterprise Skills into Sustainable Microenterprises through Capability Development in Urban Poor Communities

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Abstract: - This study uses the resource-based view and human capital theory to examine the effects of the "Poultry Enterprise Skills: From Coop to Market" training on the livelihood and business performance of the marginalized sector of Barangay 176-C, Bagong Silang, Caloocan City. This study reconstructs the Poultry Enterprise Skills Training (PEST), Enterprise Capability Development (ECD), and Livelihood and Business Performance (LBP) constructs, focusing on the role of enterprise capability as a mediating factor. A quantitative, cross-sectional, explanatory-predictive research design using Partial Least Squares Structural Equation Modeling (PLS-SEM) analyzes the data collected from 300 selected respondents. Results indicated that participants with low incomes and less formal schooling were found to be entrepreneurial and highly appreciated the integrated, value-chain-embedded training. Results suggest that PEST has helped to improve ECD and LBP, that ECD has aided LBP, and that the training - performance relationship is partially mediated by ECD. The model has substantial explanatory power confirming that capability development leads to performance. This study expresses the value of integrated training encompassing the entire value chain of production, finance, product development, and marketing, transforming subsistence activities into sustainable microenterprises. The study enriches the existing literature by providing a framework for capability and performance and contributes to community development practices through the design of productive livelihood and extension programs. Finally, this study shows that the integration of training practice and economic empowerment is essential for promoting economic growth.

Key-Words: - Enterprise Capability Development; Human Capital Development; Microenterprise Performance; Sustainable Livelihoods; Resource-Based View; PLS-SEM.

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1 Introduction

Persistent problems in the transition from subsistence to sustainable livelihood activities in low-income urban communities underpin the need for sustainable livelihood opportunities in urban areas [1]. Informal means of livelihood are common in Barangay 176-C, Bagong Silang, Caloocan City, and backyard poultry farming is a common livelihood activity although most of the backyard poultry farmers are doing them in traditional and low productive ways. Poultry production lacks structured management and market integration, and the resulting minimal income and low scalability reflect a more systemic development problem [2], [3]. Here, the lack of financial planning and market integration inhibits the development of sustainable microenterprises. As a result, integrated livelihoods initiatives address the problem by promoting the development of production and enterprise [4]. There is, however, a clear gap in the broader approach of such initiatives in improving training programs in order to create sustainable enterprises and improve performance. Many initiatives focus on developing isolated technical skills without proper integration of financial management and market skills. As a result, beneficiaries are unable to use what they have learned, and this leads to underperforming enterprises and constraints on economic growth. This illustrates the gap in the provision of a comprehensive approach that links training to improved enterprise performance, as well as to the performance of livelihoods. Within this context, this study aims to determine the relationship among three components of PEST, ECD, and LBP. This study identifies the impact of training on enterprise capability and the impact of enterprise capability on business performance. This study focuses on the

role of enterprise capability as a mediator in the impact of PEST and on how sustainable economic benefits are realized through skills-based initiatives. This research integrates training, capability, and performance into community-based livelihood programs [5]. It focuses on the interrelation and differentiation of these processes and intends to develop theory and practice in this regard. These advances are anticipated to improve the effectiveness of extension and outreach work and to inform strategies and policies designed to support sustainable microenterprises among vulnerable populations. Thus, the research seeks to extend the discourse on livelihood development by emphasizing structured, practical training that has the capacity to enhance the sustainable economic resiliency of vulnerable populations.

2 Literature Review

The growing emphasis on agricultural entrepreneurship to ensure livelihood development demonstrates the necessity for integrated training interventions to improve socio-economic outcomes for low-income populations [6]. Recently, Poultry Enterprise Skills Training (PEST) has been acclaimed in the literature for its potential to Catalyse the development of enterprise within the integrated production, financial, product development and marketing competencies in the "Coop to Market" framework [7]. Production skills include efficiency in feeding, housing and management of diseases and this reduces mortality and improves productivity [8]. Entrepreneurs also need financial skills to help them compute costs, price their products, and engage in bookkeeping to sustain their businesses [9]. Processing and packing the products combined with efforts to brand the products enable smallholder farmers to penetrate higher value markets [10]. Sustainable and competitive enterprise is achieved through integration of these different skills in Poultry Enterprise Skills Training [11].

Enterprise Capability Development (ECD) captures how skills are converted into actions that create value [12]. Based on the Resource-Based View (RBV) and Human Capital Theory, ECD as a key mechanism converts skills into performance outcomes is the focus of this study [13]. In the context of livelihood development, this theory suggests how structured training programs such as PEST help build the required basic capacity for entrepreneurship and for generating an income. Acquired knowledge is of no use unless it is converted into effective action in the real world [14]. From the Resource-Based View (RBV) perspective, achieving a sustainable competitive advantage is defined by the effective deployment of rare, valuable, unique (VRIN) assets and capabilities of the firm [15]. In small and community-based businesses, these capabilities and assets are often intangible and reside in employees' skills and experience [16]. From an RBV perspective, performance is not implied by the possession of resources [17]. In this perspective, ECD is a critical organizational capability required for entrepreneurs to effectively manage production, monitor financial performance, offer products to the market that meet customers' needs, and make appropriate strategic decisions [18].

The integration of Human Capital Theory and the Resource-based View (RBV) completes the picture of how training produces economic outcomes [19]. Human Capital Theory describes the development of individual competencies through training. The RBV extends this by describing how, when trained competencies are transformed into organizational capabilities, they provide sustainable performance and a competitive advantage [20]. Thus, the Centrality of Development (CdD) describes the transformation of training into employable competencies and the continuous application of capability building within enterprise development [21]. The outcome of training and capability development is the enhancement of livelihoods and the performance of businesses (LBP) through, inter alia, increase in income and sales, sustainability, and expansion of the enterprise [22], [23]. Through several academic papers, integrated training and raised capability have largely improved productivity and income while strengthening economic resilience [24]. The major driver of increased income is a higher production output, making quality and pricing products optimally [25]. It is aligned production capacity with market demand that accounts for sales growth [26]. The operational sustainability of the enterprise relies upon the ability to adapt and build relationships with customers [27]. Expansion of an enterprise refers to the growth in business activities, reach and scope [28]. These indicators cover the spectrum of the improvement of livelihoods and economy.

The relationship among PEST, ECD and LBP will be clearer with a mediational analysis that shows how training contributes to business performance through capability development [29]. It has been documented that the effectiveness of training hinges on participants' ability to apply knowledge in the workplace [30]. Meaning, without

enterprise capability training, an intervention will have little effect on business outcomes [31].Thus, ECD constitutes the main connector in the chain of skills and performance and therefore calls for a more integrated, applied training approach [32]. The literature also advocates for the integration of PEST as it progressively improves enterprise capabilities which ultimately improves livelihoods and business performance [33]. This holistic perspective also supports the need to integrate technical training with the practical application of training and market engagement to harness the full potential of community based livelihood programs to obtain sustainable economic results [34].

Hypotheses:
H1: Poultry Enterprise Skills Training (PEST) has a significant positive effect on Enterprise Capability Development (ECD).
H2: Poultry Enterprise Skills Training (PEST) has a significant positive effect on Livelihood and Business Performance (LBP).
H3: Enterprise Capability Development (ECD) has a significant positive effect on Livelihood and Business Performance (LBP).

3 Research Method

This study utilized a quantitative descriptive research design to examine the relationships among Poultry Enterprise Skills Training (PEST), Enterprise Capability Development (ECD), and Livelihood and Business Performance (LBP) [33]. The design facilitated the measurement and analysis of variables using survey instruments and captured respondents' current conditions regarding their skills, capabilities, and the outcomes of their businesses for analysis. It is suitable for studying relationships and the mediating role of ECD without changing the variables, giving an objective measure of the effectiveness of the training program.

The participants in this study were 300 residents of Barangay 176-C, Bagong Silang in Caloocan City, Metro Manila, Philippines, who were or were interested in poultry-related and livelihood activities [35]. The selection of the respondents was done using purposive sampling technique which guarantees data relevance because of the experience or potential involvement of the respondents in the "Coop to Market" program. The inclusion criteria were based on the participants being over 18 years of age, living in the barangay, and willing to participate, with those who did not submit complete responses being excluded [36].

Besides, a structured questionnaire was used to gather the data and was made up of the following four sections: demographic profile, PEST analysis, ECD, and last but not the least LBP [37]. The instrument measured training exposure, the application of capability, and business performance outcomes using indicators from relevant studies in the context of poultry enterprise development. Sample items included production and enterprise management characteristics and improvements in enterprise income. All items were measured on a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = No Opinion, 4 = Agree, 5 = Strongly Agree). Content validation and a pilot test were conducted to ensure the instrument's ability and pertinence. Data collection was done via a face-to-face survey after necessary approvals and coordination with relevant stakeholders. Respondents were interviewed by stakeholders. Ethical concerns, including consent, the right to refuse participation, and confidentiality of data, were observed. All completed questionnaires were checked, coded, and prepared for analysis [38]. Descriptive data were used to summarize the respondent profiles. The hypothesized relationships among the variables were tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) [39]. SmartPLS 4.1 and IBM SPSS Statistics 30 were used for analysis. PLS-SEM was used to analyze a complex model with latent constructs and mediation effects. It provided the opportunity to evaluate the measurement model's validity (reliability, convergent validity, etc.) and the assessment of structural relationships through the determination of path coefficients and their levels of significance, thus offering considerable empirical evidence in support of the study's framework [40].

3.1 Structural Model Specification

The hypothesized relationships were expressed as a system of structural equations. Enterprise Capability Development (ECD) was modelled as an endogenous construct predicted by Poultry Enterprise Skills Training (PEST), while Livelihood and Business Performance (LBP) was modeled as an endogenous construct predicted by both PEST and ECD. The structural equations were specified as follows:

$$ECD_i = \beta_0 + \beta_1 PEST_i + \varepsilon_{1i} \quad (1)$$

$$LBP_i = \gamma_0 + \gamma_1 PEST_i + \gamma_2 ECD_i + \varepsilon_{2i} \quad (2)$$

where $PEST_i$represents Poultry Enterprise Skills Training, ECD_irepresents Enterprise Capability

Development, and LBP_i represents Livelihood and Business Performance for respondent i. The coefficients β_1, γ_1, and $\gamma_2$represent the hypothesized structural relationships, while ε_{1i} and ε_{2i} represent the respective disturbance terms. The indirect effect of PEST on LBP through ECD was specified as:

$$IE = \beta_1\gamma_2 \quad (3)$$

The total effect of PEST on LBP was expressed as the sum of its direct and indirect effects:

$$TE = \gamma_1 + \beta_1\gamma_2 \quad (4)$$

The variance accounted for was calculated to determine the proportion of the total effect transmitted through ECD:

$$VAF = \frac{IE}{TE} \times 100 \quad (5)$$

These equations provided the formal basis for testing the direct effect of PEST on ECD, the direct effects of PEST and ECD on LBP, and the mediating role of ECD in the relationship between PEST and LBP.

Measurement Model Specification. Because all three constructs were specified reflectively, the relationships between each latent construct and its observed indicators were expressed as:

$$x_{PEST,j} = \lambda_{PEST,j}PEST + \delta_{PEST,j},\ j = 1, \dots, p$$
$$x_{ECD,k} = \lambda_{ECD,k}ECD + \delta_{ECD,k},\ k = 1, \dots, q$$
$$x_{LBP,l} = \lambda_{LBP,l}LBP + \delta_{LBP,l},\ l = 1, \dots, r$$

where $x$represents an observed indicator, λdenotes its outer loading, and δrepresents indicator-specific measurement error. These equations specify that the observed indicators are manifestations of their respective latent constructs.

Model Identification. Each observed indicator was assigned to a single latent construct. The constructs' scales were set by the standardized estimation of PLS-SEM. Constructs were defined by multiple indicators. The structural model contained no feedback loops and was recursive. The model also included a disturbance term for each of the endogenous constructs. The number of observed data was greater than the estimated parameters. Multicollinearity, indicator reliability, convergent validity and discriminant validity were tested prior to analysis and interpretation of the structural paths. These elements supported empirical identification and stable estimation of the PLS-SEM model. All latent constructs—Poultry Enterprise Skills Training (PEST), Enterprise Capability Development (ECD), and Livelihood and Business Performance (LBP)—were specified as reflective measurement models because their indicators represent manifestations of the corresponding underlying constructs. The PLS-SEM analysis followed a two-stage procedure consisting of measurement-model assessment and structural-model assessment. The PLS algorithm was executed in SmartPLS version 4.1 using a path-weighting scheme, a maximum of 300 iterations, and a stop criterion of 10^{-7}. Statistical significance was assessed through nonparametric bootstrapping with 5,000 subsamples, a two-tailed test, and a 5% significance level. Accordingly, path coefficients were considered statistically significant when $p < 0.05$and the corresponding 95% bootstrap confidence interval did not include zero. Before model estimation, the dataset was screened for incomplete responses, missing values, and invalid response patterns. Questionnaires with substantial missing data were excluded. No remaining missing values were identified in the final dataset. Indicators with outer loadings of at least 0.708 were retained. Indicators with loadings between 0.40 and 0.708 were considered for removal only when their exclusion improved composite reliability or average variance extracted without compromising the construct's theoretical content. Indicators with loadings below 0.40 were removed. The adequacy of the sample was assessed through an a priori power analysis using G*Power version 3.1.9.7. With two predictors, a medium effect size ($f^2 = 0.15$), a significance level of 0.05, and statistical power of 0.80, the analysis indicated a minimum required sample of 68 respondents. Therefore, the final sample of 300 respondents exceeded the minimum sample-size requirement and was considered adequate for the PLS-SEM analysis. The measurement model was evaluated using indicator loadings, Cronbach's alpha, rho_A, composite reliability, average variance extracted, and the heterotrait-monotrait ratio.

The structural model was assessed using inner variance inflation factors, path coefficients, bootstrap confidence intervals, coefficient of determination (R^2), effect sizes (f^2), predictive relevance (Q^2), and the standardized root mean square residual. The bootstrap t statistics in Table 13 and Table 14 test each structural coefficient against zero. PLS-SEM was appropriate because the study examines simultaneous relationships among latent constructs and the mediating role of Enterprise Capability Development. Bootstrapping with 5,000 subsamples generated t-statistics, p-values, and confidence intervals for all direct and indirect effects. ANOVA and chi-square were not applied because the hypotheses do not concern group-mean

differences or categorical associations; consequently, these tests would not provide evidence directly relevant to the proposed structural model.

4 Findings

The data show a concentration of respondents in informal work, low-income brackets, and moderate educational levels, with a clear preference for integrated poultry enterprise training, indicating both need and readiness for livelihood programs.

Table 1 presents the distribution of respondents by source of livelihood.

Table 1. Source of Livelihood

Source of Livelihood	Frequency	Percentage
Agri-Based Livelihood	28	9.33%
Microenterprise and Entrepreneurial Livelihood	62	20.67%
Informal Wage and Labor-Based Livelihood	74	24.67%
Digital and Emerging Livelihood	18	6.00%
Subsistence and Survival-Based Livelihood	32	10.67%
Household-Based and Shared Income	26	8.67%
Remittance and External Support	20	6.67%
Unemployed / Livelihood-Seeking	25	8.33%
Aspiring Entrepreneurs	15	5.00%
Total	**300**	**100.00%**

Source: author's survey data.

Table 2 summarizes the respondents' types of work.

Table 2. Type of Work

Type of Work	Frequency	Percentage
Poultry Raising (Backyard)	36	12.00%
Poultry Business (Commercial/Small-scale)	18	6.00%
Farming (Non-poultry)	22	7.33%
Vendor / Small Retail Business (Sari-sari store, street vending)	48	16.00%
Laborer / Construction Worker	40	13.33%
Service Worker (e.g., helper, driver, security guard)	38	12.67%
Office/Clerical Work	16	5.33%
Skilled Work (e.g., electrician, carpenter, mechanic)	20	6.67%
Online Selling / Digital Work	14	4.67%
OFW / Remittance-based Household	12	4.00%
Student	10	3.33%
Housewife / Homemaker	18	6.00%
No Current Work	8	2.67%
Total	**300**	**100.00%**

Source: author's survey data.

Table 3 presents the age distribution of the respondents.

Table 3. Age

Age	Frequency	Percentage
18–24 years old	42	14.00%
25–34 years old	78	26.00%
35–44 years old	70	23.33%
45–54 years old	54	18.00%
55–64 years old	36	12.00%
65 years old and above	20	6.67%
Total	**300**	**100.00%**

Source: author's survey data.

Table 4 summarizes the respondents' educational attainment.

Table 4. Educational Attainment

Educational Attainment	Frequency	Percentage
No Formal Education	6	2.00%
Elementary Level (not completed)	18	6.00%
Elementary Graduate	36	12.00%
Junior High School Level (not completed)	40	13.33%
Junior High School Graduate	54	18.00%
Senior Hight School Level (not completed)	30	10.00%
Senior High School Graduate	42	14.00%
Vocational/Technical Course (TESDA or equivalent)	26	8.67%
College Level (not completed)	22	7.33%
College Graduate	20	6.67%
Postgraduate (Master's/Doctorate)	2	0.67%
Others	4	1.33%
Total	**300**	**100.00%**

Source: author's survey data.

Table 5 presents the respondents' monthly income distribution.

Table 5. Monthly Income

Monthly Income	Frequency	Percentage
Below ₱5,000	48	16.00%
₱5,001 – ₱10,000	72	24.00%
₱10,001 – ₱15,000	64	21.33%
₱15,001 – ₱20,000	46	15.33%
₱20,001 – ₱25,000	32	10.67%
₱25,001 – ₱30,000	22	7.33%
₱30,001 and above	16	5.33%
Total	**300**	**100.00%**

Source: author's survey data.

Table 6 lists the respondents' preferred livelihood training topics.

Table 6. Preferred Livelihood Trainings

Preferred Livelihood Trainings	Frequency	Percentage
Basic bookkeeping (sales, expenses, cash flow)	12	4.00
Basic financial technology (e-wallets, digital payments)	8	2.67
Basic product branding	10	3.33
Break-even analysis and profit computation	12	4.00
Cost monitoring and expense tracking	14	4.67
Customer handling and sales techniques	10	3.33
Digital marketing strategies	8	2.67
Disease prevention and basic poultry health management	18	6.00
Estimating production capacity and output	12	4.00
Feed formulation using locally available inputs	16	5.33
Income projection and planning	10	3.33
Local market selling strategies	14	4.67
Market demand identification	10	3.33
Online selling (e.g., Facebook Marketplace)	8	2.67
Organic poultry production techniques	20	6.67
Poultry Enterprise Skills From Coop to Market	30	10.00
Poultry housing and coop management	18	6.00
Preparing a simple business/enterprise profile	10	3.33
Preparing products for market display	10	3.33
Pricing strategies (cost-based pricing)	10	3.33
Processing of poultry products (eggs, meat cuts)	16	5.33
Product packaging and labeling	12	4.00
Use of mobile apps for business	12	4.00
Total	**300**	**100%**

Source: author's survey data.

Table 7 presents respondents' assessments of Poultry Enterprise Skills Training (PEST). Results indicate that training effectively enhances participants' competencies across production, financial, product development, and marketing domains.

Table 7. Assessment of Respondents' Poultry Enterprise Skills Training (PEST)

Poultry Enterprise Skills Training (PEST)	Mean	Verbal Interpretation
I have gained sufficient knowledge in proper poultry feeding, housing, and health management.	3.88	Agree
I am able to compute production costs, pricing, and basic financial records for poultry operations.	3.74	Agree
I have learned how to develop poultry products, including processing, packaging, and branding.	3.79	Agree
I understand effective marketing strategies for selling poultry products to different customers.	3.72	Agree
The training program has improved my overall skills from poultry production to market delivery ("Coop to Market").	3.95	Agree
Total	**3.82**	**Agree**

Note: 1.00 – 1.80 = Strongly Disagree; 1.81 – 2.60 = Disagree; 2.61 – 3.40 = Neutral; 3.41 – 4.20 = Agree; 4.21 – 5.00 = Strongly Agree
Source: author's survey data.

Table 8 presents respondents' assessments of Enterprise Capability Development (ECD). Findings confirm that respondents are able to translate acquired skills into practical enterprise capabilities.

Table 8. Enterprise Capability Development (ECD)

Enterprise Capability Development (ECD)	Mean	Verbal Interpretation
I can efficiently manage day-to-day poultry production activities.	3.89	Agree
I am capable of tracking my business costs, revenues, and profits accurately.	3.76	Agree
I can prepare poultry products that meet market standards and customer expectations.	3.83	Agree
I am able to create business plans and make informed decisions for my poultry enterprise.	3.71	Agree
I can apply the knowledge gained from training to operate and improve my poultry business.	3.94	Agree
Total	**3.83**	**Agree**

Note: 1.00 – 1.80 = Strongly Disagree; 1.81 – 2.60 = Disagree; 2.61 – 3.40 = Neutral; 3.41 – 4.20 = Agree; 4.21 – 5.00 = Strongly Agree
Source: author's survey data.

Table 9 presents respondents' assessments of livelihood and business performance. Results reflect moderate improvements in income, business

growth, and sustainability, indicating tangible but developing economic outcomes.

Table 9. Assessment of Respondents' Business Performance (BP)

Business Performance (BP)	Mean	Verbal Interpretation
My income has increased as a result of engaging in poultry enterprise activities.	3.78	Agree
My poultry business has experienced growth in sales and production output.	3.74	Agree
My poultry enterprise is sustainable and can continue operating in the long term.	3.7	Agree
I have expanded my poultry-related activities (e.g., increased stock, new products, or markets).	3.69	Agree
My overall economic condition has improved due to my poultry business.	3.76	Agree
Total	3.73	Agree

Note: 1.00 – 1.80 = Strongly Disagree; 1.81 – 2.60 = Disagree; 2.61 – 3.40 = Neutral; 3.41 – 4.20 = Agree; 4.21 – 5.00 = Strongly Agree
Source: author's survey data.

Table 10 presents the construct reliability and convergent validity results. All constructs meet acceptable reliability and validity thresholds, ensuring sound measurement. The structural model shows strong explanatory power, particularly for business performance, indicating that the model effectively captures outcome variations.

Table 10. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ECD	0.88	0.88	0.91	0.68
LBP	0.92	0.92	0.94	0.75
PEST	0.90	0.90	0.92	0.71

Note: ECD = Enterprise Capability Development; LBP = Livelihood and Business Performance; PEST = Poultry Enterprise Skills Training
Source: author's statistical analysis of survey data.

Table 11 presents the heterotrait-monotrait ratios used to assess discriminant validity.

Table 11. Discriminant Validity – Heterotrait-Monotrait Ratio (HTMT)

Constructs	ECD	LBP	PEST
ECD	-	-	-
LBP	0.82	-	-
PEST	0.75	0.80	-

Note: ECD = Enterprise Capability Development; LBP = Livelihood and Business Performance; PEST = Poultry Enterprise Skills Training
Source: author's statistical analysis of survey data.

Figure 1 presents the estimated structural model, including the indicator loadings, path coefficients, and explained variance of ECD and LBP.

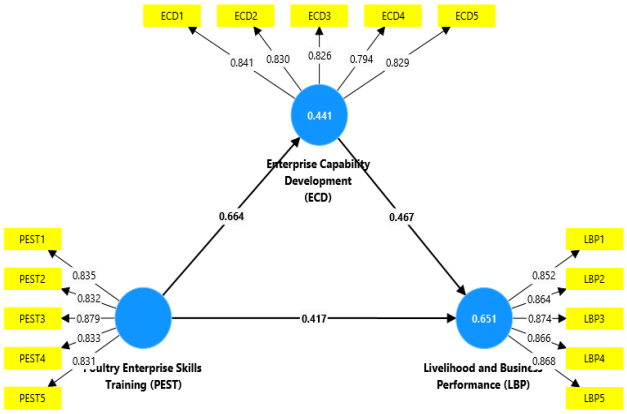


Fig. 1: Structural Model of Poultry Enterprise Skills Training, Enterprise Capability Development, and Livelihood and Business Performance
Source: created by the author using SmartPLS 4.1.

Table 12 reports the R-square and adjusted R-square values for ECD and LBP. Results highlight moderate to substantial predictive capability of the model. Path analysis confirms that training significantly influences business performance both directly and indirectly through enterprise capability development.

Table 12. R-square – Overview

	R-square	R-square adjusted
Enterprise Capability Development	0.44	0.44
Livelihood and Business Performance	0.65	0.65

Source: author's statistical analysis of survey data.

Table 13 presents the bootstrapped direct effects among PEST, ECD, and LBP. Bootstrap t-tests confirm that all direct paths are significant ($t = 9.45–20.84$, $p < 0.001$), while the indirect PEST→ECD→LBP effect is also significant ($t =$

9.12, p < 0.001). Thus, ECD is a significant mediator of the training–performance relationship.

Table 13. Path Coefficients – Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
ECD → LBP	0.47	0.47	0.05	10.39	< 0.001
PEST → ECD	0.66	0.66	0.03	20.84	< 0.001
PEST → LBP	0.42	0.42	0.04	9.45	< 0.001

Note: ECD = Enterprise Capability Development; LBP = Livelihood and Business Performance; PEST = Poultry Enterprise Skills Training.
Sig. = significance level (p < 0.001)
Source: author's statistical analysis of survey data.

Table 14 presents the specific indirect effect of PEST on LBP through ECD. Findings demonstrate that the impact of training is strengthened when skills are effectively translated into capabilities.

Table 14. Specific Indirect Effects – Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
PEST → ECD → LBP	0.31	0.31	0.03	9.12	< 0.001

Note: ECD = Enterprise Capability Development; LBP = Livelihood and Business Performance; PEST = Poultry Enterprise Skills Training.
Sig. = significance level (p < 0.001)
Source: author's statistical analysis of survey data.

The model produced an indirect effect of $IE = (0.66)(0.47) = 0.3102$, consistent with the bootstrapped estimate of 0.31 ($t = 9.12, p < 0.001$). The total effect was $TE = 0.42 + 0.3102 = 0.7302$, resulting in $VAF = (0.3102/0.7302) \times 100 = 42.48\%$. Because the direct effect of PEST on LBP ($\beta = 0.42, p < 0.001$) and the indirect effect through ECD were both positive and significant, ECD demonstrates complementary partial mediation. Thus, enterprise capability development transmits approximately 42.48% of the total effect of training on livelihood and business performance. Respondents were found to be in a state of economic vulnerability as characterized by low income, informal employment and limited educations. However, they were found to have considerable interest and are prepared to engage in livelihood enhancing endeavors such as poultry enterprise [41]. The choice of integrated "Coop to Market" training demonstrates the preference for training that is comprehensive and it is fully integrated and aligned to the realities of the market and employment, human capital theory [42] describes this preference. Positive assessments of PEST and ECD indicate that training helps build knowledge and skills and aids the application of skills to business contexts. The structural model confirms that training, directly and indirectly, enhances the livelihood and business performance through enterprise capability development. According to the resource based view, the capability development of training strengthens the model [43]. Therefore, to foster sustainable microenterprises, training should be complemented with mentoring, opportunities for application, and financial and market support.

5 Conclusions

The research found that the program "Poultry Enterprise Skills: From Coop to Market" positively affects livelihoods by strengthening enterprises and improving business overall for economically marginalized communities. The research emphasizes that despite low levels of both income and education, people can improve their productivity and income and can subsequently improve their economic well-being through trainings that are integrated, practical, and oriented toward application. The research indicates that the transfer of gained skills to practical business usage has a very high importance to businesses. It also indicates that one of the main points of ability growth is capacity building, which contributes to getting concrete economic results. The study contributes to the field of program evaluation by going far beyond defining the outcomes of the program but rather explaining the effect of training in quantitative terms. The decision to implement the "Coop to Market" integrated training program shows that the elements of the program bring positive value to business owners. It is recommended that higher education institutions and community extension offices strengthen and institutionalize the *"Poultry Enterprise Skills from Feed Formulation to Market Readiness"* program by providing practical training in poultry production, financial management, product development, digital marketing, and market linkages. Simplified and localized materials, sustained mentoring, digital tools, stakeholder partnerships, and structured monitoring should be integrated to help economically vulnerable participants transform small-scale poultry activities into sustainable microenterprises.

6 Limitation and Further Research

This study provides context-specific insights based on purposively selected respondents from one community, self-reported data, and a cross-sectional design. Future studies may broaden these findings by including diverse communities, additional external factors, and longitudinal or mixed-method approaches to capture changes in livelihood outcomes over time. Examining market conditions, capital access, government support, digital technologies, and environmental risks may further enrich understanding of sustainable microenterprise performance.

7 Ethical Considerations

This study adhered to ethical research standards by ensuring voluntary participation, informed consent, confidentiality, and protection of participants' rights throughout the research process. The study protocol was reviewed and approved by the Bulacan State University Ethics Review Committee (BulSU-ERC) under Protocol Code BulSUERC-2026-0169-01. Ethical approval was granted prior to data collection, and all research procedures were conducted in accordance with the ethical principles governing research involving human participants.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work, the author(s) utilized artificial intelligence (AI) technologies solely for the purpose of linguistic refinement and grammatical correction. Following the application of these tools, the author(s) comprehensively reviewed, verified, and edited the resulting text. The author(s) maintain full accountability and responsibility for the accuracy, integrity, and final content of the publication.

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